

WE CLAIM:

1. In a distributed data processing system comprising a plurality of data processing nodes connected via a network, each node having a processor, memory and operating system capable of executing application programs, each of said operating systems including data exchange means, said nodes communicating by asynchronous messaging via respective data exchange means and each node including process-private interrupt handling means for indicating the presence of a command for a respective process in said data exchange means,

a method for remote tracing from a local one of said data processing nodes of the execution of a process within an application program running on a remote one of said data processing nodes, said application program including its own local trace facility, said method comprising the steps of:

sending a trace command from a trace process running on said local data processing node into a data exchange means of said remote data processing node;

in response to said trace command, causing a process-private interrupt of a target process running on said remote data processing node;

in response to said process-private interrupt, said target process writing trace information from said trace facility to said data exchange means of said remote data processing node;

5

transmitting said trace information across said network;

receiving in a data exchange means on said local data processing node, said trace information;

10

in response to receiving said trace information, causing a process-private interrupt of said trace process; and

15

in response to said process-private interrupt, reading said trace information by said trace process, from said local data exchange means.

20

2. A method as claimed in claim 1, in which the step of sending a trace command further comprises the steps of:

writing a trace command from a trace process into said local data exchange means;

25

initiating said process private interrupt on said local data processing node in response to said trace command;

transmitting said trace command across said network;
and

5 replicating said process-private interrupt on said
remote data processing node in response to said trace
command.

10 3. A method as claimed in claim 1, in which after the
step of causing a process private interrupt of a target
process, said process private interrupt is re-enabled.

15 4. A method as claimed in claim 1, in which after said
step of said target process writing trace information,
said target process is re-started from the beginning of
its execution.

20 5. A method as claimed in claim 1, in which said remote
data exchange means and said local data exchange means
are mailboxes.

25 6. A method as claimed in claim 5 in which each of said
remote data exchange means and local data exchange means
comprise separate mailboxes for said reading and writing
trace information operations, respectively.

7. A method as claimed in claim 1, in which said trace
information is encrypted on said remote data processing
node.

8. A method as claimed in claim 7, in which said trace information is decrypted on said local data processing node.

5 9. A method as claimed in claim 1, in which said trace information is annotated.

10. A method as claimed in claim 1, in which said network is the Internet.

10

11. A method as claimed in claim 1 in which said trace information is viewed with a monitor of said data processing nodes.

15

12. A computer program product stored on a computer readable storage medium for, when executed on a computer, instructing the computer to carry out the method of claim 1.

20

13. A distributed data processing system comprising a plurality of data processing nodes connected via a network, each node having a processor, memory and operating system capable of executing application programs, each of said operating systems including data exchange means and interrupt handling means, a first data processing node comprising:

25

means for sending a trace command from a trace process running on said first data processing node into a data exchange means of a second data processing node, said second data processing node including a trace facility for tracing execution of a process within an application program running on said second data processing node,

interrupt handling means of said second data processing node, in response to said trace command, causing a process-private interrupt of a target process running on said second data processing node;

said second data processing node further including means for writing trace information from the trace facility, to said data exchange means of said second data processing node in response to the process-private interrupt; and

means for transmitting said trace information across said network whereby a data exchange means of said first data processing node receives said trace information at said first data processing node; and

in response to receipt of said trace information, interrupt handling means of said first data processing node causes a process-private interrupt of said trace process;

said first data processing node further including means for reading said trace information, from said data exchange means of said first data processing node in response to said process-private interrupt.

5

14. A system as claimed in claim 13, in which the means for sending a trace command further comprises:

10

means for writing a trace command from a trace process into said local data exchange means;

15

means for initiating said process private interrupt on said local data processing node in response to said trace command;

20

means for transmitting said trace command across said network; and

means for replicating said process-private interrupt on said remote data processing node in response to said trace command.

25

15. A system as claimed in claim 13, further comprising:

means for re-enabling said process private interrupt.

16. A system as claimed in claim 13, further comprising:

means for re-starting said target process from the beginning of its execution.

5 17. A system as claimed in claim 13, in which said remote data exchange means and said local data exchange means are mailboxes.

10 18. A system as claimed in claim 13, in which each of said remote data exchange means and local data exchange means comprise separate mailboxes for said reading and writing trace information operations, respectively.

15 19. A system as claimed in claim 13, further comprising:
means for encrypting said trace information on said remote data processing node.

20 20. A system as claimed in claim 19, further comprising:
20 means for decrypting said trace information on said local data processing node.

25 21. A system as claimed in claim 13, further comprising:
means for annotating said trace information.

22. A system as claimed in claim 13, in which said network is the Internet.

23. A system as claimed in claim 13, in which said trace information is viewed with a monitor of said data processing nodes.

11
12
13
14
15
16
17
18
19
20
21
22
23
24